

# Secondary Smelting, Refining, and Alloying of Copper: 2002

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## 2002 Economic Census

*Manufacturing*

Industry Series



U S C E N S U S B U R E A U

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U.S. Department of Commerce  
Economics and Statistics Administration  
U.S. CENSUS BUREAU



**Table 1. Historical Statistics for the Industry: 2002 and Earlier Years**

[Data based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). For information on confidentiality protection, sampling error, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Industry and year <sup>1</sup>	Com- panies <sup>2</sup>	All estab- lish- ments <sup>3</sup>	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expendi- tures (\$1,000)	
			Number <sup>4</sup>	Payroll (\$1,000)	Number <sup>4</sup>	Hours (1,000)	Wages (\$1,000)					
331423, Secondary smelting, refining, and alloying of copper.....	2002..	30	31	1 445	67 005	827	1 838	31 825	150 560	459 008	610 938	19 792
	2001..	N	N	1 859	79 309	1 151	2 464	39 048	179 732	544 740	729 840	11 318
	2000..	N	N	2 061	84 593	1 334	2 842	45 794	185 744	752 843	937 467	12 320
	1999..	N	N	2 066	83 859	1 385	2 906	45 006	161 377	791 402	954 425	9 101
	1998..	N	N	2 285	89 251	1 552	3 379	47 891	307 960	828 089	1 141 602	8 946
	1997..	34	35	2 333	91 105	1 580	3 420	48 590	323 315	868 455	1 197 379	16 401

<sup>1</sup>Statistics presented for years ending in 2 and 7 are census data. Interim census years are derived in a representative sample of manufacturing establishments canvassed in the Annual Survey of Manufactures (ASM).

<sup>2</sup>For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

<sup>3</sup>Includes establishments with payroll at any time during the year.

<sup>4</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain sampling errors and nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

**Table 2. Industry Statistics for Selected States: 2002**

[States that are a disclosure or with less than 100 employees are not shown. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, explanation of terms, and geographical definitions, see note at end of table. For information on geographic areas followed by \*, see Appendix D. For meaning of abbreviations and symbols, see introductory text]

Industry and geographic area	E <sup>1</sup>	All establishments <sup>2</sup>		All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
		Total	With 20 employees or more	Number <sup>3</sup>	Payroll (\$1,000)	Number <sup>3</sup>	Hours (1,000)	Wages (\$1,000)				
331423, Secondary smelting, refining, and alloying of copper												
United States.....	—	31	18	1 445	67 005	827	1 838	31 825	150 560	459 008	610 938	19 792
Tennessee.....	7	3	2	148	6 139	99	221	3 495	15 021	16 582	31 411	962

<sup>1</sup>Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data account for 10 percent or more of the figures shown: 1—10 to 19 percent; 2—20 to 29 percent; 3—30 to 39 percent; 4—40 to 49 percent; 5—50 to 59 percent; 6—60 to 69 percent; 7—70 to 79 percent; 8—80 to 89 percent; 9—90 percent or more.

<sup>2</sup>Includes establishments with payroll at any time during the year.

<sup>3</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C. For geographical definitions, see Appendix D.

# Table 3. Detailed Statistics by Industry: 2002

[Data based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). For information on confidentiality protection, sampling error, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Item	Value
331423, Secondary smelting, refining, and alloying of copper	
Companies <sup>1</sup> .....	number.. 30
All establishments <sup>2</sup> .....	number.. 31
Establishments with 1 to 19 employees .....	number.. 13
Establishments with 20 to 99 employees .....	number.. 13
Establishments with 100 employees or more .....	number.. 5
All employees <sup>3</sup> .....	number.. 1 445
Total compensation .....	\$1,000.. 81 399
Annual payroll .....	\$1,000.. 67 005
Total fringe benefits .....	\$1,000.. 14 394
Production workers, average for year .....	number.. 827
Production workers on March 12 .....	number.. 841
Production workers on May 12 .....	number.. 865
Production workers on August 12 .....	number.. 819
Production workers on November 12 .....	number.. 778
Production worker hours .....	1,000.. 1 838
Production worker wages .....	\$1,000.. 31 825
Total cost of materials .....	\$1,000.. 459 008
Materials, parts, containers, packaging, etc., used .....	\$1,000.. 427 016
Resales .....	\$1,000.. 14 283
Purchased fuels .....	\$1,000.. 8 309
Purchased electricity .....	\$1,000.. 7 426
Contract work .....	\$1,000.. 1 974
Quantity of electricity purchased for heat and power .....	1,000 kWh.. 103 946
Quantity of electricity generated less sold for heat and power .....	1,000 kWh.. S
Total value of shipments .....	\$1,000.. 610 938
Primary products value of shipments .....	\$1,000.. 576 974
Secondary products value of shipments .....	\$1,000.. 14 323
Total miscellaneous receipts .....	\$1,000.. 19 641
Value of resales .....	\$1,000.. 14 696
Contract receipts .....	\$1,000.. D
Other miscellaneous receipts .....	\$1,000.. D
Primary products specialization ratio .....	percent.. 98
Value of primary products shipments made in all industries .....	\$1,000.. 625 812
Value of primary products shipments made in this industry .....	\$1,000.. 576 974
Value of primary products shipments made in other industries .....	\$1,000.. 48 838
Coverage ratio .....	percent.. 92
Value added .....	\$1,000.. 150 560
Total inventories, beginning of year .....	\$1,000.. 53 936
Finished goods inventories .....	\$1,000.. 33 758
Work-in-process inventories .....	\$1,000.. 9 283
Materials and supplies inventories .....	\$1,000.. 10 895
Total inventories, end of year .....	\$1,000.. 55 331
Finished goods inventories .....	\$1,000.. 31 913
Work-in-process inventories .....	\$1,000.. 9 758
Materials and supplies inventories .....	\$1,000.. 13 660
Gross value of depreciable assets (acquisition costs) at beginning of year .....	\$1,000.. 207 073
Total capital expenditures (new and used) .....	\$1,000.. 19 792
Buildings and other structures (new and used) .....	\$1,000.. 2 846
Machinery and equipment (new and used) .....	\$1,000.. 16 946
Automobiles, trucks, etc., for highway use .....	\$1,000.. 1 231
Computers and peripheral data processing equipment .....	\$1,000.. 1 231
All other expenditures for machinery and equipment .....	\$1,000.. 14 484
Total retirements .....	\$1,000.. 5 675
Gross value of depreciable assets at end of year .....	\$1,000.. 221 190
Depreciation charges during year .....	\$1,000.. 11 186
Total rental payments .....	\$1,000.. 8 957
Buildings and other structures .....	\$1,000.. 3 935
Machinery and equipment .....	\$1,000.. 5 022
Total other expenses <sup>4</sup> .....	\$1,000.. 13 777
Response coverage ratio <sup>5</sup> .....	percent.. 65
Repair and maintenance services of buildings and/or machinery <sup>4</sup> .....	\$1,000.. 4 647
Communications services <sup>4</sup> .....	\$1,000.. 708
Legal services <sup>4</sup> .....	\$1,000.. 856
Accounting, auditing, and bookkeeping services <sup>4</sup> .....	\$1,000.. 989
Advertising and promotional services <sup>4</sup> .....	\$1,000.. 144
Expensed computer hardware and supplies and purchased computer services <sup>4</sup> .....	\$1,000.. 379
Refuse removal (including hazardous waste) services <sup>4</sup> .....	\$1,000.. 457
Management consulting and administrative services <sup>4</sup> .....	\$1,000.. 939
Taxes and license fees <sup>4</sup> .....	\$1,000.. 982
All other expenses <sup>4</sup> .....	\$1,000.. 3 674

<sup>1</sup>For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

<sup>2</sup>Includes establishments with payroll at any time during the year.

<sup>3</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

<sup>4</sup>Based on Annual Survey of Manufactures (ASM) sample data.

<sup>5</sup>A response coverage ratio is derived for this item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight) for those Annual Survey of Manufactures (ASM) establishments that reported to the weighted total employment for all ASM establishments classified in this industry.

Note 1: The amounts shown for other expenses reflect only those services that establishments purchase from other companies.

Note 2: The data in this table are based on the 2002 Economic Census and the 2002 Annual Survey of Manufactures (ASM). To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain sampling errors and nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

**Table 4. Industry Statistics by Employment Size: 2002**

[Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Employment size class	E <sup>1</sup>	All establishments <sup>2</sup>	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number <sup>3</sup>	Payroll (\$1,000)	Number <sup>3</sup>	Hours (1,000)	Wages (\$1,000)				
331423, Secondary smelting, refining, and alloying of copper											
All establishments .....	—	31	1 445	67 005	827	1 838	31 825	150 560	459 008	610 938	19 792
Establishments with—											
1 to 4 employees .....	7	6	a	D	D	D	D	D	D	D	D
5 to 9 employees .....	9	2	a	D	D	D	D	D	D	D	D
10 to 19 employees .....	1	5	76	3 350	49	108	1 665	18 980	19 023	37 811	1 280
20 to 49 employees .....	2	5	136	5 283	100	206	3 214	10 583	31 189	42 098	613
50 to 99 employees .....	—	8	565	24 326	325	717	12 008	76 903	224 730	301 161	11 020
100 to 249 employees .....	—	5	639	32 899	336	773	14 396	41 995	177 126	220 860	6 518
250 to 499 employees .....	—	—	—	—	—	—	—	—	—	—	—
500 to 999 employees .....	—	—	—	—	—	—	—	—	—	—	—
1,000 to 2,499 employees .....	—	—	—	—	—	—	—	—	—	—	—
2,500 employees or more .....	—	—	—	—	—	—	—	—	—	—	—
Administrative records <sup>4</sup> .....	9	5	15	580	10	18	275	903	3 932	4 835	212

<sup>1</sup>Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data account for 10 percent or more of the figures shown: 1–10 to 19 percent; 2–20 to 29 percent; 3–30 to 39 percent; 4–40 to 49 percent; 5–50 to 59 percent; 6–60 to 69 percent; 7–70 to 79 percent; 8–80 to 89 percent; 9–90 percent or more.

<sup>2</sup>Includes establishments with payroll at any time during the year.

<sup>3</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

<sup>4</sup>Some payroll and sales data for small single-establishment companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. Data are also included in respective size classes shown.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

**Table 5. Industry Statistics by Primary Product Class Specialization: 2002**

[Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note at end of table. For meaning of abbreviations and symbols, see introductory text]

Industry or product class code	Industry or primary product class	All establishments <sup>1</sup>	All employees		Production workers			Value added (\$1,000)	Total cost of materials (\$1,000)	Total value of shipments (\$1,000)	Total capital expenditures (\$1,000)
			Number <sup>2</sup>	Payroll (\$1,000)	Number <sup>2</sup>	Hours (1,000)	Wages (\$1,000)				
331423	Secondary smelting, refining, and alloying of copper.....	31	1 445	67 005	827	1 838	31 825	150 560	459 008	610 938	19 792
3314230	Secondary smelting, refining, and alloying of copper.....	31	1 445	67 005	827	1 838	31 825	150 560	459 008	610 938	19 792

<sup>1</sup>Includes establishments with payroll at any time during the year.

<sup>2</sup>Number of employees figures represent average number of production workers for pay period that includes the 12th of March, May, August, and November plus other employees for payroll period that includes the 12th of March.

Note: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

Table 6a. **Products Statistics: 2002 and 1997**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Product code	Product	Number of companies with shipments of \$100,000 or more	Quantity of production for all purposes	Product shipments	
				Quantity	Value (\$1,000)
331423	Secondary smelting, refining, and alloying of copper . . . . .	2002.. N	X	X	625 812
		1997.. N	X	X	1 094 557
3314230	Secondary smelting, refining, and alloying of copper . . . . .	2002.. N	X	X	625 812
		1997.. N	X	X	1 094 557
33142304	Secondary copper and copper-base alloy powders, paste, and flakes . . . . .	2002.. N	X	X	118 334
		1997.. N	X	X	N
3314230406	Secondary copper and copper-base alloy powders, paste, and flakes . . . . . mil lb.	2002.. 11	X	S	118 334
		1997.. N	X	N	N
33142305	Other refined secondary copper and copper-base alloy (including cathode, wire bar, ingot and ingot bar, cakes, slabs, shot, etc.) . . . . .	2002.. N	X	X	491 588
		1997.. N	X	X	N
3314230501	Other refined secondary copper and copper-base alloy (including cathode, wire bar, ingot and ingot bar, cakes, slabs, shot, etc.) <sup>1</sup> . . . . . 1,000 s tons.	2002.. 21	X	S	491 588
		1997.. N	X	N	N
3314230Y	Secondary smelting, refining, and alloying of copper, nsk, total . . . . .	2002.. N	X	X	15 890
		1997.. N	X	X	—
3314230YWW	Secondary smelting, refining, and alloying of copper, nsk, for nonadministrative-record establishments . . . . .	2002.. N	X	X	11 191
		1997.. N	X	X	—
3314230YWY	Secondary smelting, refining, and alloying of copper, nsk, for administrative-record establishments . . . . .	2002.. N	X	X	4 699
		1997.. N	X	X	—

<sup>1</sup>This product code is primary to more than one industry. See industry 331411, product code 3314110113.

Note 1: For some establishments, data have been estimated from central unit values that are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: p—10 to 19 percent estimated; q—20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Note 2: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.

Table 6b. **Product Class Shipments for Selected States: 2002 and 1997**

[Not applicable for this report.]



**Table 7. Materials Consumed by Kind: 2002 and 1997**

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. Data based on the 2002 Economic Census. For information on confidentiality protection, nonsampling error, and explanation of terms, see note 2 at end of table. For meaning of abbreviations and symbols, see introductory text]

Material code	Material consumed	Quantity	Delivered cost (\$1,000)
331423	Secondary smelting, refining, and alloying of copper		
00900001	Total materials .....2002..	X	427 016
	.....1997..	X	791 638
33141103	Refined unalloyed copper (cathodes, ingots, cakes, slabs, etc.), including blister and anode copper .....1,000 s tons..2002..	D	D
	.....1997..	2.4	4 933
33100015	All other copper and copper-base alloy shapes and forms (excluding castings, forgings, and fabricated metal products) .....2002..	X	110 710
	.....1997..	X	154 110
33100075	All other nonferrous shapes and forms (excluding castings, forgings, and fabricated metal products) .....2002..	X	D
	.....1997..	X	N
00190024	Copper and copper-base alloy scrap (excluding home scrap) .....1,000 s tons..2002..	S	270 661
	.....1997..	N	578 538
00190026	Zinc and zinc-base alloy scrap (including drosses and skimmings) .....2002..	X	1 487
	.....1997..	X	1 717
00190052	All other nonferrous metal and metal-base alloy scrap .....2002..	X	11 741
	.....1997..	X	26 157
00970099	All other materials and components, parts, containers, and supplies .....2002..	X	16 112
	.....1997..	X	18 050
00971000	Materials, ingredients, containers, and supplies, nsk .....2002..	X	9 455
	.....1997..	X	8 133

Note 1: For some establishments, data have been estimated from central unit values that are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: p-10 to 19 percent estimated; q-20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by S.

Note 2: The data in this table are based on the 2002 Economic Census. To maintain confidentiality, the Census Bureau suppresses data to protect the identity of any business or individual. The census results in this table contain nonsampling errors. Data users who create their own estimates using data from American FactFinder tables should cite the Census Bureau as the source of the original data only. For explanation of terms, see Appendix A. For full technical documentation, see Appendix C.